

Amendments to the Claims

1. (Currently amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer comprising H₂O to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the ~~substrate~~, substrate, and

during the flowing at least one gaseous oxidizer, changing a flow rate of one or more oxidizers to produce a non-homogenous ~~the~~ a ratio of barium relative to strontium within the dielectric layer ~~being non-homogenous~~.

2. (Original) The method of claim 1 comprising flowing another inorganic oxidizer to the reactor during the deposit.

3. (Original) The method of claim 1 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature of less than or equal to 550°C.

Claims 4-5. (Cancelled)

6. (Currently amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; ~~and~~

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer comprising H_2O_2 to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate; and

adjusting the flow of the at least one gaseous oxidizer to produce the dielectric layer having a first portion of the dielectric layer comprising a first ratio of barium relative to strontium, and a second portion of the dielectric layer having a second ratio of barium relative to strontium, the first ratio differing from the second ratio.

7. (Original) The method of claim 6 comprising flowing another inorganic oxidizer to the reactor during the deposit.

8. (Original) The method of claim 6 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature of less than or equal to $550^{\circ}C$.

Claims 9-10. (Cancelled)

11. (Currently amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; ~~and~~

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the flowing gaseous oxidizers comprising H₂O and flowing at least one another oxidizer selected from the group consisting of O₂, O₃, NO_x, and N₂O, where "x" is at least 1, and flowing H₂O; and

utilizing the flowing H₂O to control an amount of titanate incorporated into the dielectric layer ~~differing from an amount that would be incorporated in the absence of the H₂O under otherwise identical conditions.~~

12. (Currently amended) The method of claim 11 wherein the ~~another~~ at least one oxidizer comprises O₂.

13. (Currently amended) The method of claim 11 wherein the ~~another~~ at least one oxidizer comprises O₃.

14. (Currently amended) The method of claim 11 wherein the ~~another~~ at least one oxidizer comprises NO_x, where "x" is at least 1.

15. (Currently amended) The method of claim 11 wherein the ~~another~~ at least one oxidizer comprises N_2O .

16. (Previously presented) The method of claim 11 wherein the oxidizers further comprise H_2O_2 .

17. (Currently amended) The method of claim 11 the oxidizers comprise at least two of the ~~another~~ at least one oxidizers.

18. (Currently amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, one or more of the at least one metal organic precursors comprising a β -diketonate ligand selected from the group consisting of thd, methd, and dmp, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the flowing gaseous oxidizers comprising H_2O_2 and flowing at least one ~~another~~ oxidizer selected from the group consisting of O_2 , O_3 , NO_x , and N_2O , where "x" is at least 1, and flowing H_2O_2 ; and
utilizing the flowing H_2O_2 to control ~~wherein the presence of H_2O_2 during deposition of the dielectric layer influences the amount of Ti incorporated into the dielectric layer and~~
to control the rate of deposition of the dielectric layer.

19. (Currently amended) The method of claim 18 wherein the ~~another~~ at least one oxidizer comprises O_2 .

20. (Currently amended) The method of claim 18 wherein the ~~another~~ at least one oxidizer comprises O_3 .

21. (Currently amended) The method of claim 18 wherein the ~~another~~ at least one oxidizer comprises NO_x , where "x" is at least 1.

22. (Currently amended) The method of claim 18 wherein the ~~another~~ at least one oxidizer comprises N_2O .

23. (Cancelled).

24. (Currently amended) The method of claim 18 the oxidizers comprise at least two of the ~~another~~ at least one oxidizers.

25. (Previously presented) The method of claim 1 wherein the at least one metal organic precursor comprises a member selected from the group consisting of $Ba(thd)_2$, $Sr(thd)_2$, $Ba(methd)_2$, $Sr(methd)_2$, $Ba(dpm)_2$, and $Sr(dpm)_2$.

26. (Previously presented) The method of claim 1 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of $Ti(dmae)_4$, $Ti(thd)_2$, $O-i-Pr$, $TiO(dpm)_2$, $Ti(t-BuO)_2(dpm)_2$, and $Ti(OCH_3)_2(dpm)_2$.

27. (Previously presented) The method of claim 6 wherein the at least one metal organic precursor comprises a member selected from the group consisting of $\text{Ba}(\text{thd})_2$, $\text{Sr}(\text{thd})_2$, $\text{Ba}(\text{methd})_2$, $\text{Sr}(\text{methd})_2$, $\text{Ba}(\text{dpm})_2$, and $\text{Sr}(\text{dpm})_2$.

28. (Previously presented) The method of claim 6 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of $\text{Ti}(\text{dmae})_4$, $\text{Ti}(\text{thd})_2$, $(\text{O-i-Pr})_2$, $\text{TiO}(\text{dpm})_2$, $\text{Ti}(\text{t-BuO})_2(\text{dpm})_2$, and $\text{Ti}(\text{OCH}_3)_2(\text{dpm})_2$.

29. (Previously presented) The method of claim 11 wherein the at least one metal organic precursor comprises a member selected from the group consisting of $\text{Ba}(\text{thd})_2$, $\text{Sr}(\text{thd})_2$, $\text{Ba}(\text{methd})_2$, $\text{Sr}(\text{methd})_2$, $\text{Ba}(\text{dpm})_2$, and $\text{Sr}(\text{dpm})_2$.

30. (Previously presented) The method of claim 11 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of $\text{Ti}(\text{dmae})_4$, $\text{Ti}(\text{thd})_2$, $(\text{O-i-Pr})_2$, $\text{TiO}(\text{dpm})_2$, $\text{Ti}(\text{t-BuO})_2(\text{dpm})_2$, and $\text{Ti}(\text{OCH}_3)_2(\text{dpm})_2$.

31. (Previously presented) The method of claim 18 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature from 440°C to 700°C .